

Exhibit A



Training DFP for CDB

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Justin Rau



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Agenda

- 1. Glossary**
- 2. Priorities**
- 3. EDA/First Look**
- 4. Header Bidding & Line items**
- 5. Tips & Best practices**

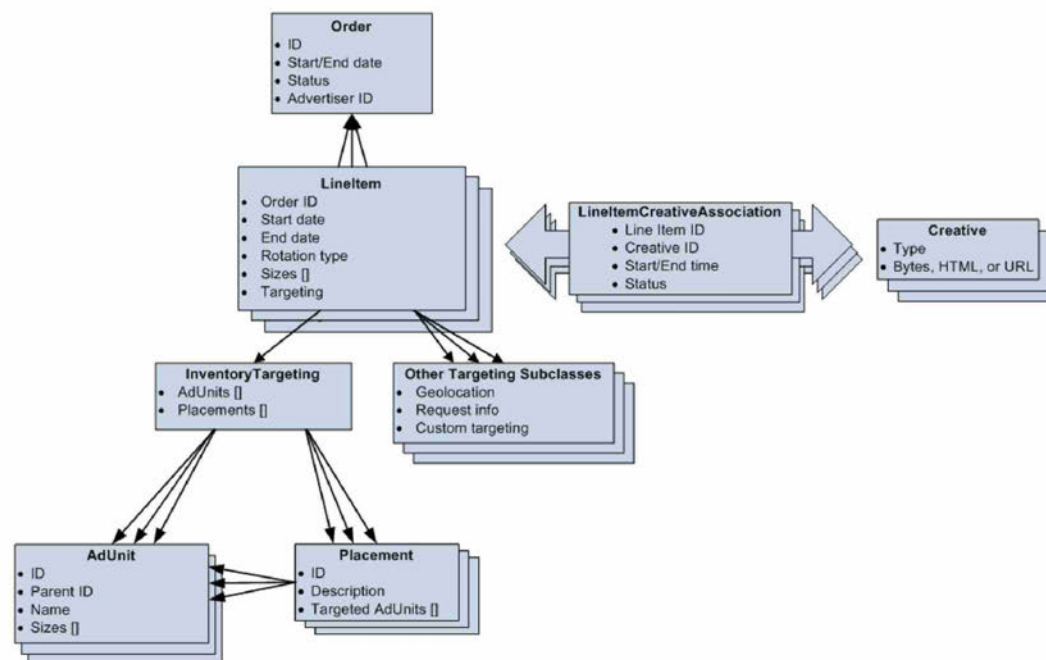
1. DFP Campaign Structure

Glossary

- **Order**
An Order object holds general information about the order such as the currency or salesperson, and contains one or more Lineltem instances. In code, each Lineltem holds the ID of its containing Order, rather than the Order holding a list of Lineltem objects.
- **Lineltem**
A Lineltem object describes a set of requirements for an ad to show, including how and when the ads should be shown, the sizes of the creatives it should show and the order in which to show them (in order, weighted, or according to their performance), the priority of these ads, and many properties describing the cost structure. A Lineltem has one InventoryTargeting object that describes which AdUnit and Placement objects it can target, and optional additional Targeting subclass objects that represent geographical, custom, or other criteria.
- **LineltemCreativeAssociation**
A LineltemCreativeAssociation (often called a LICA) links one Lineltem to one Creative. Line items can be linked to more than one creative, and depending on your account type, you might be able to link a creative to more than one line item. When you create a LineltemCreativeAssociation, DFP first checks whether both the creative and the line item are compatible; if the sizes differ, for instance, you'll get an error when you try to create or update the association. This object also lets you override some values in the associated Lineltem, such as start/end dates, or size (if you have a creative that doesn't quite fit the size specified by the line item, but you are willing to let DFP adjust the size of the creative to fit the ad unit on the fly). LICAs are not exposed in the DFP user interface; they are an API convention.
- **Creative**
A Creative represents the actual ad. If the ad is hosted by DFP, this object holds the actual image bytes, flash files, or custom HTML tags stored on DFP's servers; if the creative is hosted on a third-party site, the creative is a URL or HTML snippet that makes the request from the third-party server.
- **InventoryTargeting and Targeting subclasses**
The InventoryTargeting object lists which ad units are associated with a specific Lineltem. You can specify additional, optional targeting criteria using additional instances of an appropriate subclass of Targeting.
- **Placement**
A Placement object is a collection of one or more AdUnit objects.
- **AdUnit**
An AdUnit represents an ad location on one or more pages. An AdUnit can be a target of either a Lineltem's InventoryTargeting object or a Placement object. An AdUnit object includes a size, an ID, and a unique name. The ID is used to identify other AdUnit objects within the API; the name is used as a unique identifier in the HTML tags to identify a specific AdUnit object, and is sent back to DFP as part of the page request.

Campaign Structure

- **Order**
A deal with an advertiser
- **LineItem**
A campaign, set of requirements for an ad to show, including priority, goal, formats, CPMs and custom criterias
- **LineItemCreativeAssociation**
Link between Creative and Line item.
- **Creative**
The ad code
- **InventoryTargeting and Targeting subclasses**
Keyword targeting.
- **Placement**
Set of AdUnit objects.
- **AdUnit**
The physical representation of the ad, the piece to be actually inserted in the pub page

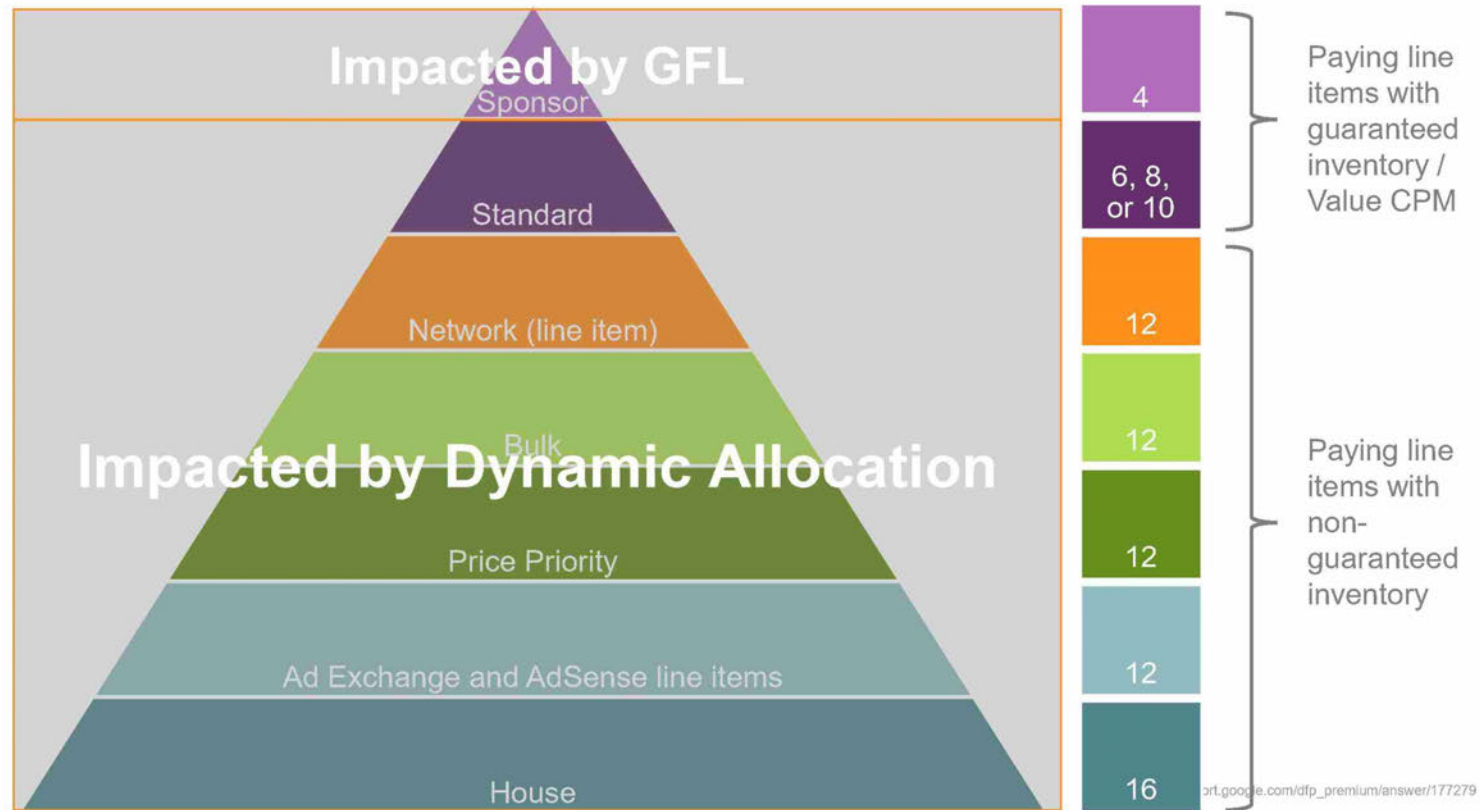


Priority

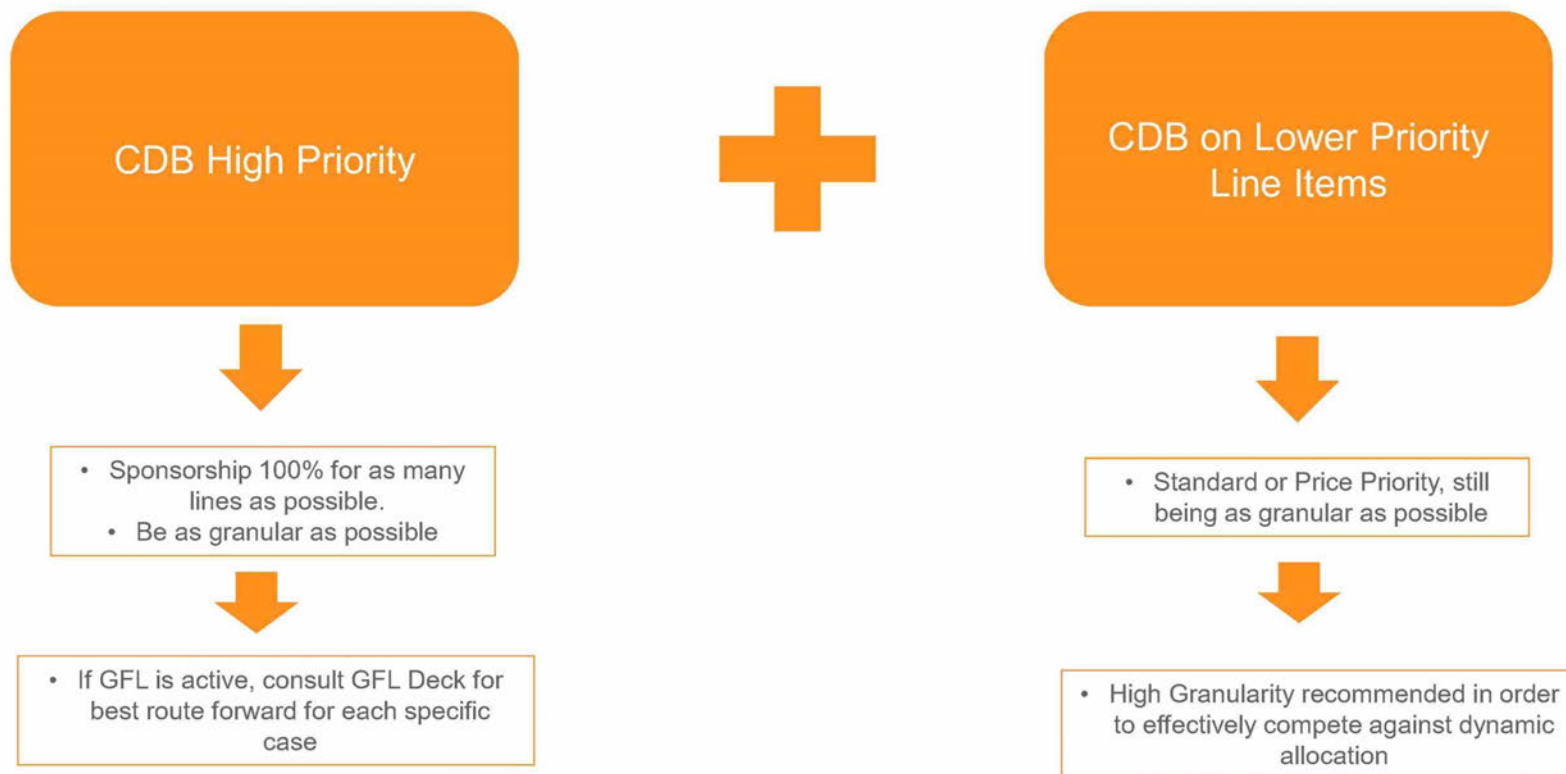
Line item type	Priority	Type of booking	Features
Paying line items with guaranteed inventory			
Sponsorship	High (4)	% inventory	Start and end dates but no impression goals. [REDACTED].
Standard	Medium (6-8-10)	Number of impressions	Start date, end date and impression goal. DFP will speed up or slow down delivery to meet the goal. The lower the priority number, the greater the priority. A priority 8 will never be before a priority 6.
Paying line items with non-guaranteed inventory			
Network	Low (12)	% inventory	Start and end dates but no impression goals.
Bulk	Low (12)	Number of impressions	Start date, end date and impression goal. Because the inventory isn't guaranteed, the impression goal functions more like an impression cap Deliver evenly by default.
Price priority	Low (12)	Higher price = higher priority	Price line items can have daily or lifetime delivery caps. They're set to deliver as fast as possible.
AdSense	Low (12)	Higher price = higher priority	Compete with all non-guaranteed line items
Ad Exchange	Low (12)	Higher price = higher priority	Compete with all non-guaranteed line items + Standard when EDA activated
Non paying line items			
House	Very Low (16)	No	Items that don't generate revenue, but are used to fill unsold inventory.

Source: https://support.google.com/dfp_premium/answer/177279

Priority



DFP Ideal Set-Up: High Level



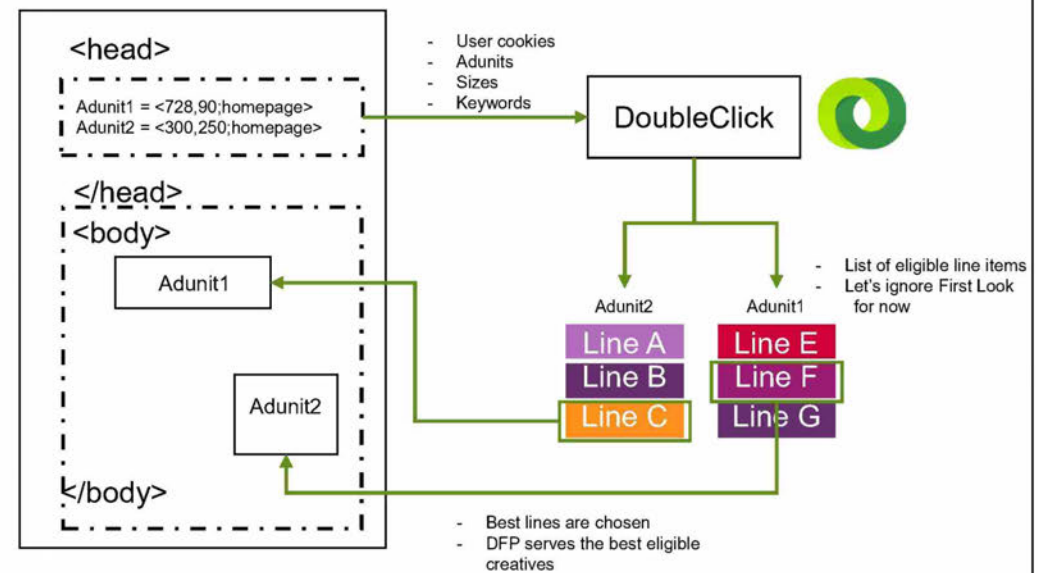
What is Google First Look (GFL)?

- Per Google, Google First Look intends to maximize your yield by allowing preferred access to inventory for selected buyers in Ad Exchange. First Look captures incremental revenue opportunities from high-CPM buyers.
- Translated: GFL allows Google and other partners via Google to compete before direct sold inventory above a given price floor. That floor is set by the publisher, not by Google.
- GFL is **not** a unique exchange, rather it is a set of rules in AdX.
- Publishers are able to set up floor prices for all buyers, or specific buyers.
- Publishers can target GFL to only apply to certain ad units or placements and even types of inventory like video or display.
- GFL only competes with bids from its open auction it DOES NOT compete with bids sent from private auctions or preferred deals.

Ad selection flow

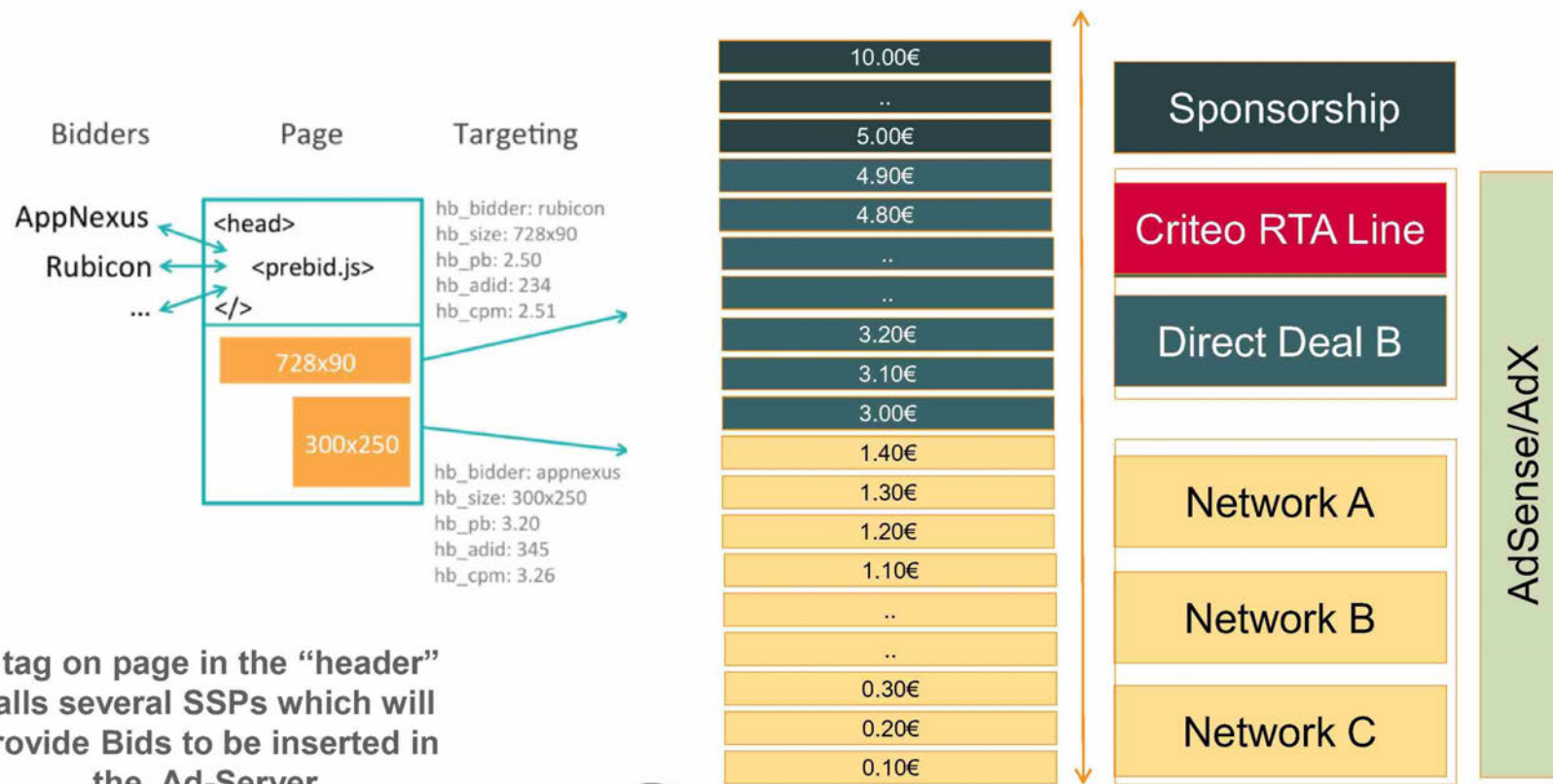
- DFP iterates through each priority level, from 1 (highest priority) to 16 (lowest priority) looking for eligible line items.
- 100% Sponsorship (or sum of sponsorship lines on same priority adding $\geq 100\%$) won't compete in EDA. (TBC)
- Otherwise, EDA will compute the following 'auction':
 - Guaranteed lines: temporary CPM is computed based on delivery pacing (Satisfaction Index)
 - Remnant (Bulk, PP,..) based on Value CPM (or CPM rate)
 - AdX CPM bid (and eventually others via EBDA)

Publisher website



2. Header Bidding & CDB implications

Header Bidding: working around the waterfall



1

A tag on page in the "header" calls several SSPs which will provide Bids to be inserted in the Ad-Server

2

Tens of "Price Priority" lines are created in the ad-server which allows networks to compete with direct lines and DA.

Challenges

- **Adunits – Zoneid mapping**
 - RTA: simply copy-paste RTA script on the header
 - CDB: requires extra dev work in order to map DFP adunits to Criteo Zoneids **per page basis (1 arbitrage = 1 display opportunity)**
 - Even though your test scope is for a single format and/or position, we suggest to integrate all the placements and control the test and roll-out via the adserver.
- **Line items setup can be a pain**
 - One line item per each price bands (thousands potentially).
 - This may increase depending on the CPM granularity, nb of bidders and nb of formats.
 - Restrictions of 450 Lines per Order

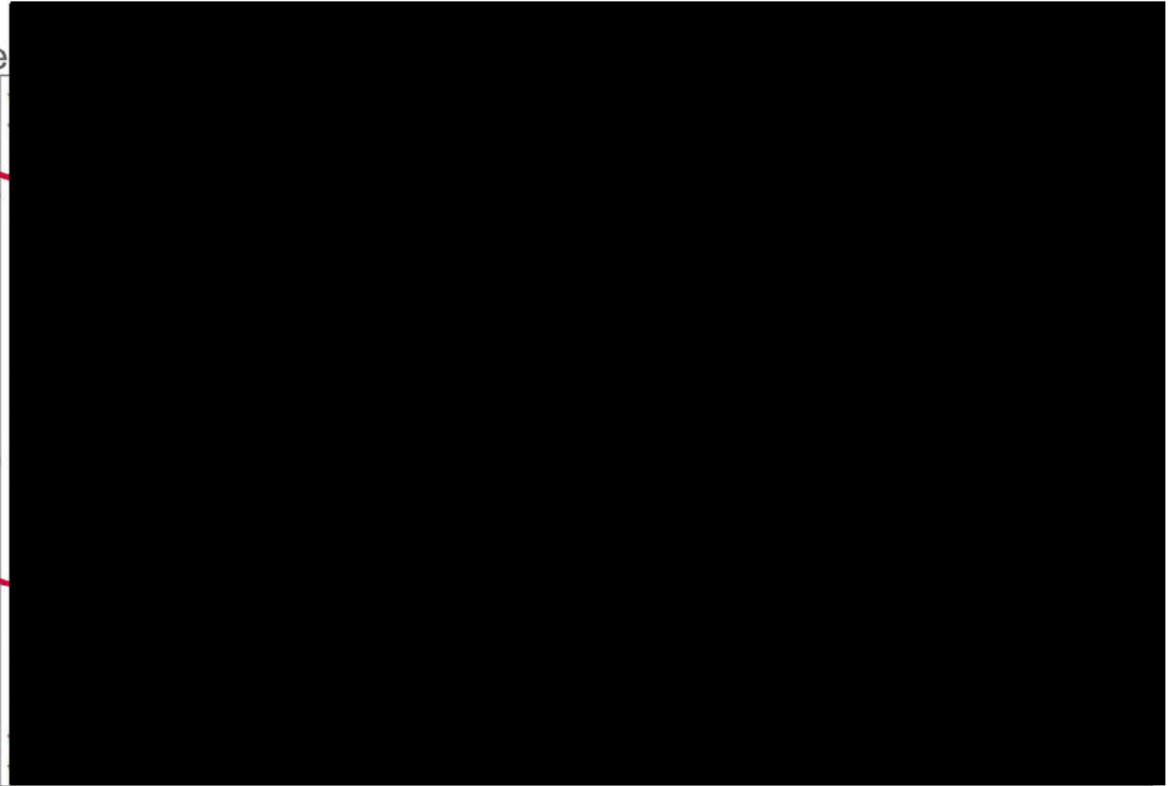
Challenges (Code example)

- **Adunits – Zoneid mapping**

- RTA: simply copy-paste RTA script on the
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- Restrictions of 450 Lines per Order



Line item creation tool (LIC)

- This tool automatize the 'replication' tasks for the different line items
- **Requirements:**
 - Publisher must grant access to a Criteo gmail account and authorize API access in the admin page
 - Supply Team or Publisher must create the first Order/Line Item/Creatives per guides below:
 - Prebid: please perform the steps 1 to 4 from [this guide](#). LIC will perform the step 5
 - OnPage: please perform steps from keywords, order, first line item, creatives from [this guide](#). LIC will perform the step "Remaining Line Items"
 - Index: we need to run the tool for each format.
 - Please clarify the price buckets to be implemented. This must use the exact same granularity defined on the page/wrapper.
- **Features:**
 - Works for Standalone, Prebid and Index
 - Multi order
 - Value CPM
 - Overbooking
- Not a feature: bulk changes
- User guide on the Appendix section
- <https://confluence.criteois.com/display/TS/5.+Line+Item+Creator>

Granting DFP Access

- To the right is the full list of standard DFP roles.
 - To create and approve our 1st Line Item and Key Values, you'll need Admin rights
 - Sales Manager lacks the ability to create key values
 - If the initial line and key values are already created, Trafficker is enough to use LIC
 - If the publisher won't allow Admin rights, and has DFP Premium, they can custom create a custom role which allows creation/editing abilities of orders, line items, key values, and ability to upload creatives.
 - Commercialization Team will work on setting up centralized accounts for granting access to DFP
- **Administrator:** Administrators have full access to all functionality.
 - **Administrator (DFP only):** Administrators for DFP only have full access to all functionality in DFP, other than Ad Exchange.
 - **Salesperson:** Salespeople can create orders, manage orders, and run reports on orders they create.
 - **Sales manager:** Sales managers can create orders, approve orders, cancel orders, edit targeting criteria, and run reports on orders, sales, and inventory.
 - **Trafficker:** Traffickers can create orders, edit orders, edit line items, upload creatives, and run reports on orders and creatives.
 - **Executive:** Executives can run reports and evaluate the effectiveness of campaigns through read-only access to all functionality.
 - **Ad Exchange manager:** Ad Exchange managers have access to Ad Exchange functionality, but not DFP. This role might not be available for your network.
 - **Legal manager:** Legal managers can view and edit users, roles, and teams, as well as access and accept the DFP payment contract when completing the self-serve billing setup. They do not have access to any other DFP functionality.

Setup scenarios

- **Granularity:**
 - The more granular the better
 - The bid will be floored to the respective price bucket ([REDACTED])
 - Value CPM can be used to fine tune the eCPM of the buckets
 - Consider the range of [REDACTED] (as opposed to Prebid's default buckets that limit to \$20)
- **Priority:** we can group line items into different priorities (eg: Price Priority from [REDACTED], Sponsorship above)
- **Multi-formats:** one line item can be used to serve all the formats
 - Index uses one set of lineitems per format
- **Multi-size:** only makes sense when publisher asks for a specific floor. Otherwise, push for the largest format
- **Bid currency:** we can bid on another currency

Prebid Details

- **Keywords per adunit:**

- hb_bidder: who won the Prebid auction (mediation mode is on by default)
- hb_adid: unique identifier for the bid
- hb_pb: price band
- hb_size: ad format

- **Mediation mode off** (pbjs.enableSendAllBids())

- Same keywords prepended by the bidder code (hb_pb_criteo, hb_adid_criteo , ...)
- Need to use it to target the line item

- **Stats per bidder**

- One lineitem set per bidder
- Use hb_bidder=criteo (mediation mode on) or hb_pb_criteo (mediation mode off)

Inventory	Key-values and Audience
Key-values and Audience	hb_pb (hb_pb) is:
Geography	0.02
Devices	hb_bidder (hb_bidder) is:
Connection	criteo

Inventory	Key-values
Key-values	hb_pb_criteo is:
Geography	28.01
Devices	

Index Details

- **Keywords per adunit:**

- ix_cdb_om: the bid format and price [(format)_(bid in cents)] (eg: ix_cdb_om=300x250_51 means \$0.51 for MPU)
- ix_cdb_id: unique identifier for the bid

- **Mediation mode off by default**

- Index always send all bidders to the adserver
- The adserver chooses the winner
- One lineitem set per format

Inventory	Key-values
Key-values	ix_cdb_om is:
Geography	300x250_2801
Devices	

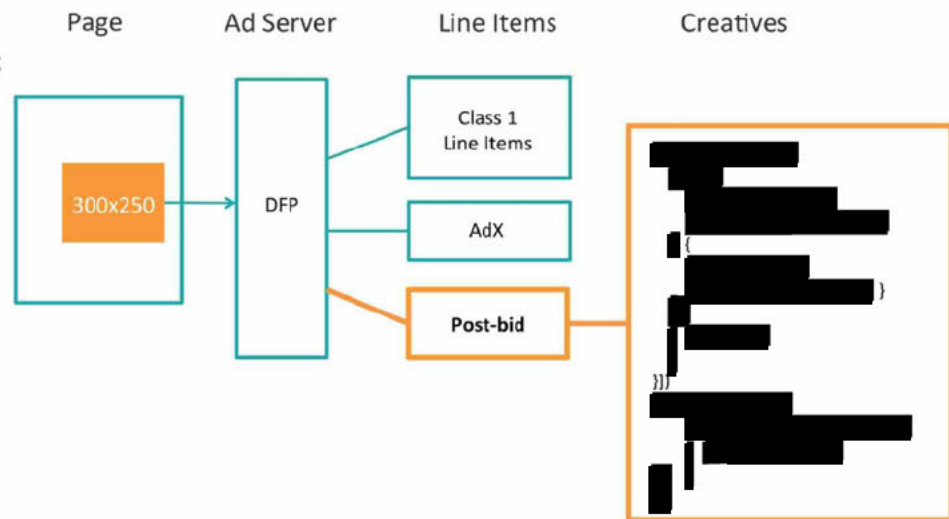
Standalone Details

- **Keywords per adunit:**
 - crt_bidid: unique identifier for the bid
 - crt_pb: price band

Inventory	Key-values
Key-values	
Geography	crt_pb is:
Devices	<input type="text" value="28.01"/>

Postbid

- The webpage sends an impression to the ad server.
- The ad server chooses a winning line item among class 1, exchanges, and the post-bid line items.
- The post-bid line item's creative contains the classic prebid script
 - No dev required on page header
- One post-bid line for all bidders based on historical CPM
- Bid-price **is not sent to adserver, we won't compete with EDA**
 - "Passback" aggregator where buyers compete in price. Waterfall still exists
- <https://confluence.criteois.com/display/TS/Post-bid>



What about other adservers ?

- **Kick-off questionnaire:**

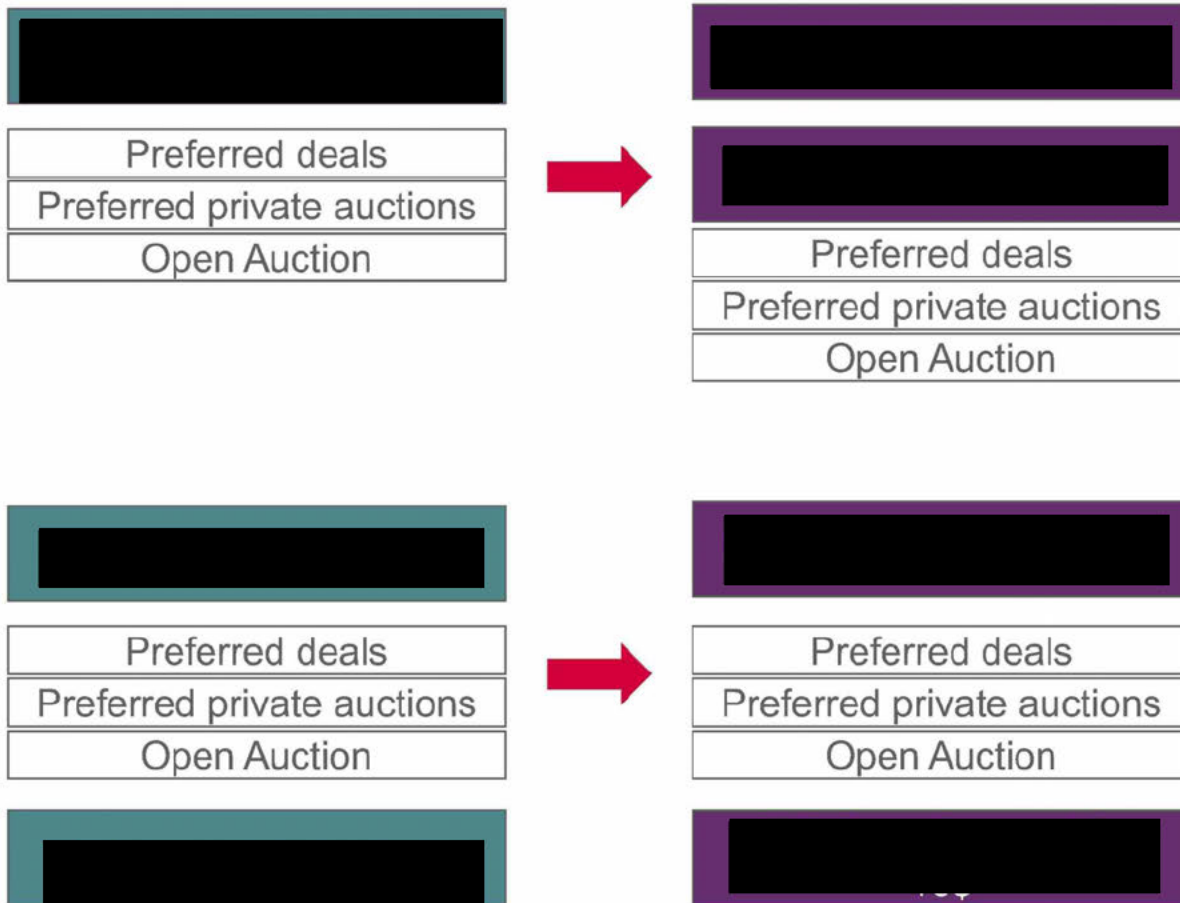
- <https://confluence.criteois.com/pages/viewpage.action?pageId=321183484#id-6.Process-IntegratingCustomAdservers>

- **Pipeline**

- Appnexus
- Adfox
- Adtech
- Smart
- No adserver

3. Migrating Live campaigns to CDB

RTA/PuMP/Passback has some form of priority



- Mirror RTA configuration by preserving priority for bids at and above RTA floor
- Compete at lower priority across all price bands
- Single zone per placement, no floors in PPM, just ad server configuration
- Possible optimizations:
 - [Redacted]
- Have a lower shading factor for higher price bands to optimize yield (need AX support)
- Add more line items at high price points

criteo.

RTA/PuMP/Passback doesn't have priority



- Best option is to try to negotiate a higher priority in the higher price bands, typically where Google First Look is set
- The pitch: "Criteo belongs to a class of buyers that needs to catch the right user at the right moment; a high bid might be available now, but not in a few hours. This is different from buyers who flat bids or are not dependent on the user context (position in the funnel, time of day, etc.)."
- If not possible, mirror RTA configuration in price priority across the entire price spectrum
- Single zone per placement, no floors in PPM, just ad server configuration

criteo.

Some things to keep in mind

- **Always** check for existing integration, and document it
- If existing integration has some form of priority, **always** start the pitch and any test integration by maintaining the priority
- **Never** accept to lose priority if an existing integration has it, not even for a test integration
- Priority is configured in the ad server: you need a **single** zone [per format], the ad server configuration will trigger the right line item based on the CDB bid
- Floor should **always** be as low as possible

4. Pre-Integration questions

Pre-Integration Questions

- Which ad server are you using?
- Which, if any, wrapper are you using?
 - If PreBid, are you sending one bid or all bids to the ad server?
- Which other bidders/partners are participating?
- Which currency do you request bidders to bid in? Which currency do you require for billing?
- If using DFP, is Enhanced Dynamic Allocation or First Look enabled via AdX rules?
- If using DFP, do you set a Value CPM for the header bidding line items?
- What is the granularity and price ranges of your current line items?
- At what priority are your line items currently set?
- What inventory sizes are you serving?
- Would it be possible to have write access to a DFP order, via a gmail account?

4. Recommendations & Best practice

Recommendations for CDB on Page

- **Determine the Header Map Before Starting Work in DFP**

- DFP can be loaded with various methods. Publishers may have unique refreshes or dynamic variables associated with their DFP. Be sure to address all these points before touching DFP.
- DFP has numerous targeting and key value options. Make sure to understand all pieces needed to properly target an ad unit.

- **Timeouts**

- Set our timeout equal to that of the partner with the current longest timeout
- If we're the first partner, set our timeout to at least 1500ms

- **Make Sure There is Only One Call to DFP**

- If there are multiples calls to the ad server, our bidder malfunctions which leads to blanks
 - Look for googletag.pubads().refresh(); in the source code of the site

- **Keep our Floor as Low as Possible**

- Ideally set the floor to 0.01 in whichever currency you are using in PPM/PuMP
- Raising the floor will limit the number of users we can buy on and ultimately hurt overall yield and TAC

Recommendations for CDB on Page

- **Limit the Header Map to 8 Calls**

- Too many arbitrages increase the risk of time outs and other malfunctions

- **AdBlock**

- AdBlock is a separate integration from CDB. The publisher will still need to code our AdBlock header and body tags on site
- Make sure to use a new affiliate for any AdBlock zones

- **Making CDB Responsive**

- <https://confluence.criteois.com/pages/viewpage.action?pageId=321183451#id-7.Q&A-Mobile/Tablet>

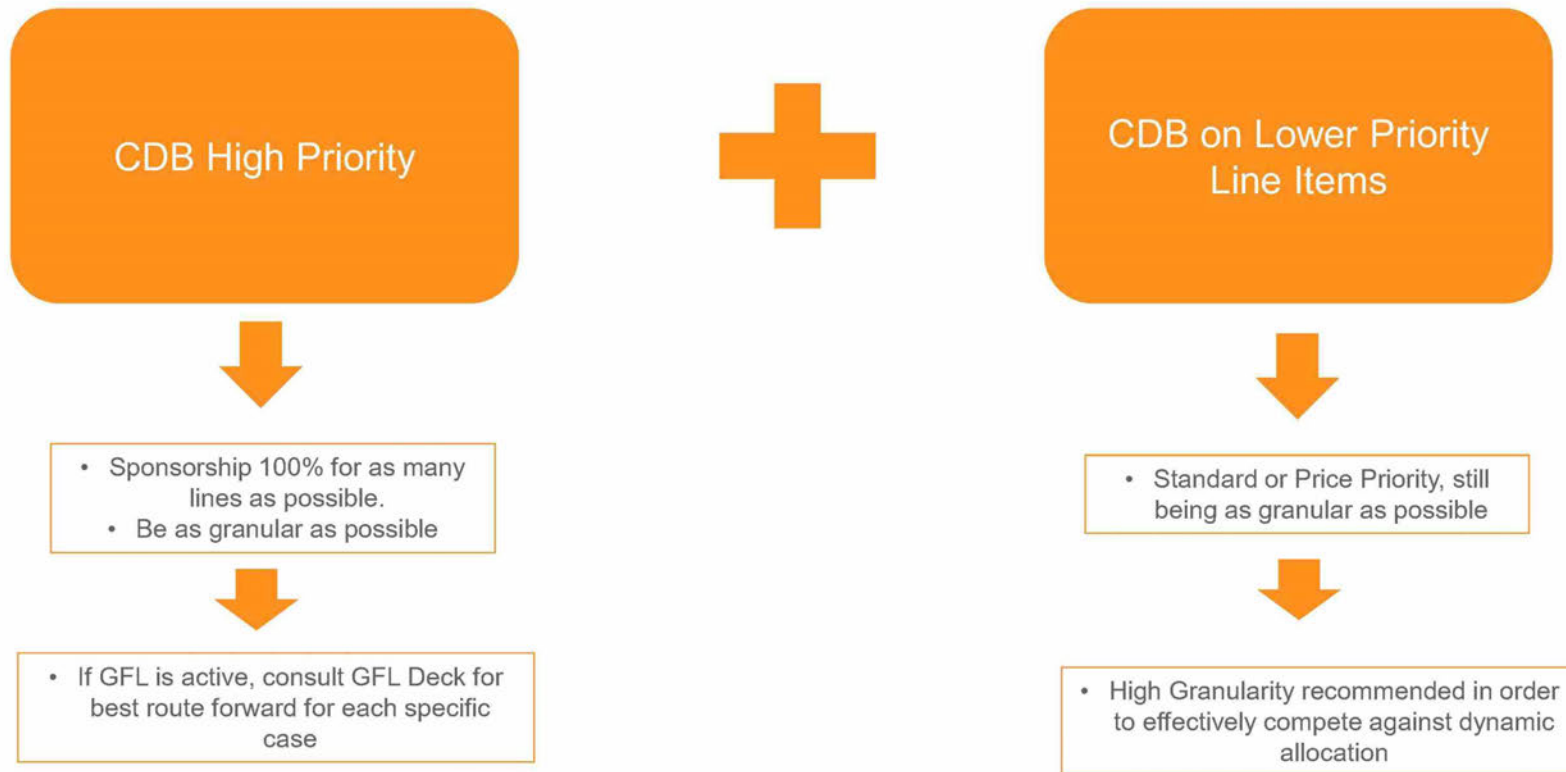
// Declare this above the adunits



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DFP Ideal Set-Up: High Level



Recommendations for CDB in DFP

- **The Higher the Priority, The Better**

- Ensure line items are always at the highest priority possible in order to access the highest value users
- If a publisher is reluctant to give Sponsorship priority, push for Standard at a certain elevated rate
- Any lines above Price Priority will give us privileged access over most header bidding partners

- **The More Granular, The Better**

- If a publisher doesn't have line item or order limitations, add as many price points as possible
 - This will give us an increased chance of winning more impressions

Examples:

- If the publisher currently has line items from \$0 to \$10 every \$0.10, propose running from every \$0.01
- If the publisher's currently lines only go up to \$50.00, propose creating lines above this threshold

- **Have At Least a Creative per Every Potential Impression on a Page**

- If a page has 5 ad units we can buy in, be sure to have at least 5 creatives on each line item

Recommendations for CDB in DFP Cont.

- **Value CPM**

- If a publisher will allow you to inflate our bids with Value CPM, this will help win impressions

- **Multi-Size**

- Due to the limitation of only having 8 zones in a map, multi-size mapping only make sense when a publisher requires a specific floor price
 - Example: The ATF Unit can be either a 300x600 or a 300x250
 - The Publisher requests that in order to serve a 300x600, we must pay at least \$3
 - Setting the floor at \$3 in PPM or PuMP for the 300x600 will allow us to only bid at \$3 or higher
 - If mapped properly, we'll still be able to bid on the 300x250 at lower price points

- **Measure Twice, Cut Once**

- Bulk editing certain aspects of line items is difficult or not possible. Make sure both publisher and team are clear on set-up before creating lines.

Priority in DFP

- **Most Publishers will request all lines be set to Price Priority**
- **In order to gain as much access to high quality inventory as possible, try to negotiate a price point at which our lines can be in Standard or Sponsorship Priority**
 - Example: Lines below [REDACTED] are in Price Priority, but lines above up to [REDACTED] are in Standard or Sponsorship
- **Even with Sponsorship priority, Google still has ways of beating our bids via Google First Look**
 - GFL is a form of dynamic allocation
 - A separate deck will be circulated with advanced info on how to combat GFL

Determining the Best Structure in DFP

There are numerous ways to set up our Orders/Line Items in DFP

Here are a few options:

- One Order with a line item that houses all inventory sizes and ad units
 - The same as PreBid's set-up
 - This is the quickest set-up, but limits our precision with troubleshooting down the road
- An Order per inventory size
 - The 300x600s have their own order
 - A popular choice with many buyers including Index
- An Order per ad unit
 - Requires the most work upfront, but gives the most precision for future troubleshooting
- An Order per Device
 - An easy way to distinguish between Desktop, Tablet and Mobile inventory
 - Would use a similar set-up to PreBid with added device targeting

Which Set-Up is Best for My Publisher?

- **Prompts to Consider:**

- How are other header bidding partners setup?
 - If there is already a structure in place, following that procedure should limit issues
- Does my publisher use the same Div id for every unit across the page?
 - Use a unique order per ad unit due to the likely need for specific key value targeting
- What if my publisher wants to limit every partner to 1 Order?
 - Use the PreBid set-up so all inventory sizes can run on 1 line, this will limit your overall line item and order count

PreBid Optimizations

- **Prebid has numerous implementation methods**
 - Prebid can run with just 1 (per price point) line item for all partners and inventory sizes
- **To optimize our buy, make sure we have our own unique line items**
 - This method is known as Send All Bids
 - This means that every partner can have a bid sent to DFP as opposed to Prebid running mediation.
 - Troubleshooting will also be easier with our own lines

CDB Key Learnings

- **Be Flexible with Integration Methods**

- Unlike PuMP or RTA, CDB integrations have more moving parts
- Be prepared to look for unique header maps and ad server loading methods

- **Be Precise with Granularity**

- Make sure the granularity of line items matches your header exactly. A mismatch can lead to impressions being bought at the wrong price point.

- **Currencies**

- Able to bid in one currency, yet pay in another
- The list of currencies we are able to bid in is the same as available currencies in PPM
 - Publishers may hold their auction in 1 defined currency even if it isn't their native currency
- Process:
 - 1.) Go to [JETSki](#), click on CDB, then Technical Troubleshooting.
 - 2.) Name the issue "Publisher Name" Bid Currency Change
 - 3.) Add the affiliate OpenX ID's under Scope
 - 4.) Tell us which currency you would like us to bid in and list the affiliate names and OpenX ID's under Additional Info
 - 5.) Submit it and wait until it is finished, you're new bidding currency is updated.

Appendix

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CRITEO - IOL

“RTA to CDB”

July, 5th 2017



WHICH WERE THE ASSUMPTIONS FOR Q2 2017?

- After many years of Criteo-IOL partnerships with RTA (lower and lower floors, as Total Revenues was the KPI), IOL was complaining and looking for a better setup in order to maximize its overall inventory Yield (average CPM was the key)
- They were asking for a Criteo solution that could compete with other buyers
- The previous deal expired on March 31st when a beta CDB was ready for the switch. As we started from a very good setup for Criteo in terms of privileged access to huge volumes, it was almost sure that the new setup would have lead to a strong decrease in Criteo TAC and Yield.

WE HAD TO MINIMIZE THE NEGATIVE EFFECTS OF THE TRANSITION

THE TRANSITION FROM RTA TO CDB – TECH SPECS

ADSERVER
DFP PREMIUM

WRAPPER
PREBID.JS



We have 435 line items in total

LINE ITEMS CREATION

ITALIAONLINE granted us a dedicated access to its Adserver: they create the first line item and we duplicate it for the whole order.

THE TRANSITION FROM RTA TO CDB

1st PHASE

To setup CDB as RTA was (the highest priority for Criteo line items above 0,05 Euros)

Goal: to understand if CDB was working correctly

2nd PHASE

To setup CDB with the highest priority for Criteo starting from a higher floor (2 Euros)

Goal: to understand if IOL could be happy by having Criteo in Sponsorship 100% above a High Floor

3rd PHASE

To setup CDB in open competition for all the line items

Goal: to understand if CDB can buy a good number of displays in a full competitive environment

LAST WEEK WE OBTAINED A NEW SPONSORSHIP above

*** – 4th Phase**

ITALIAONLINE 2017 – KPIs (only CDB – one affiliate)

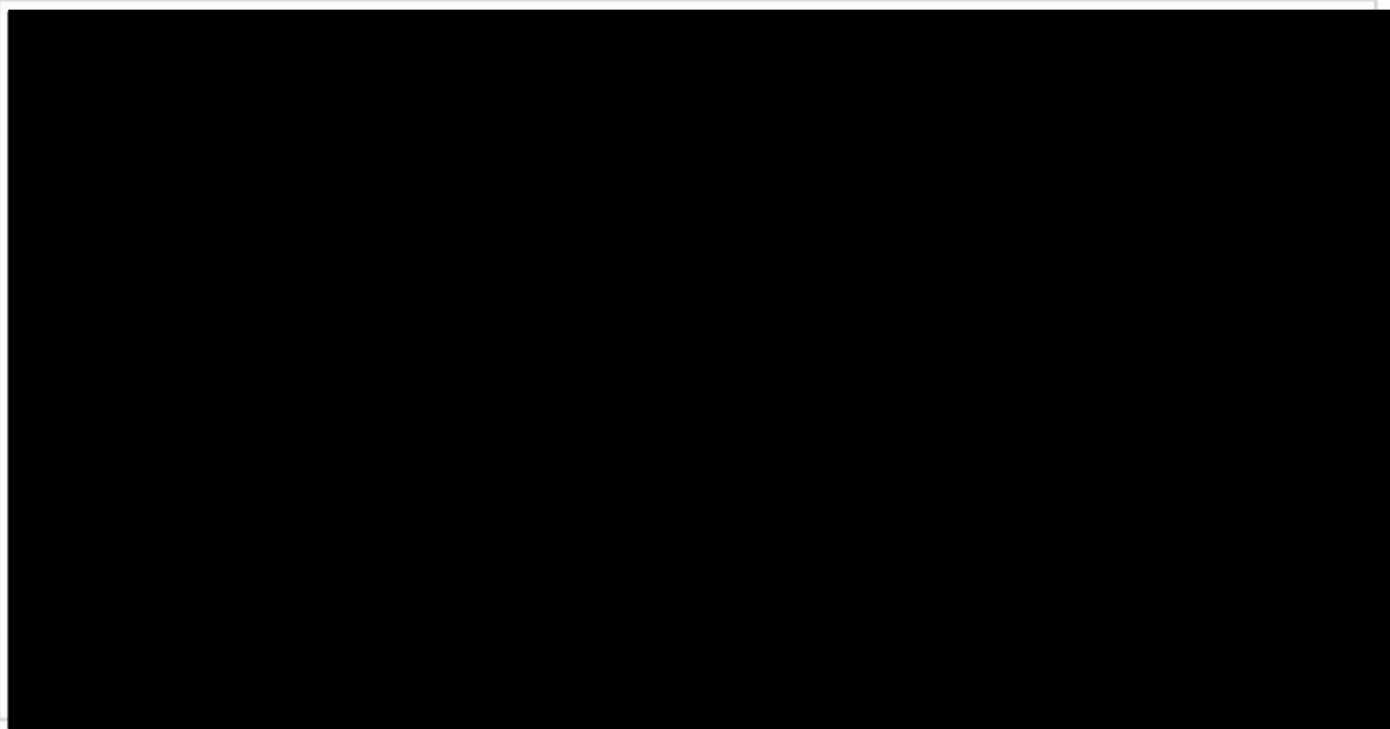
Phases

1st

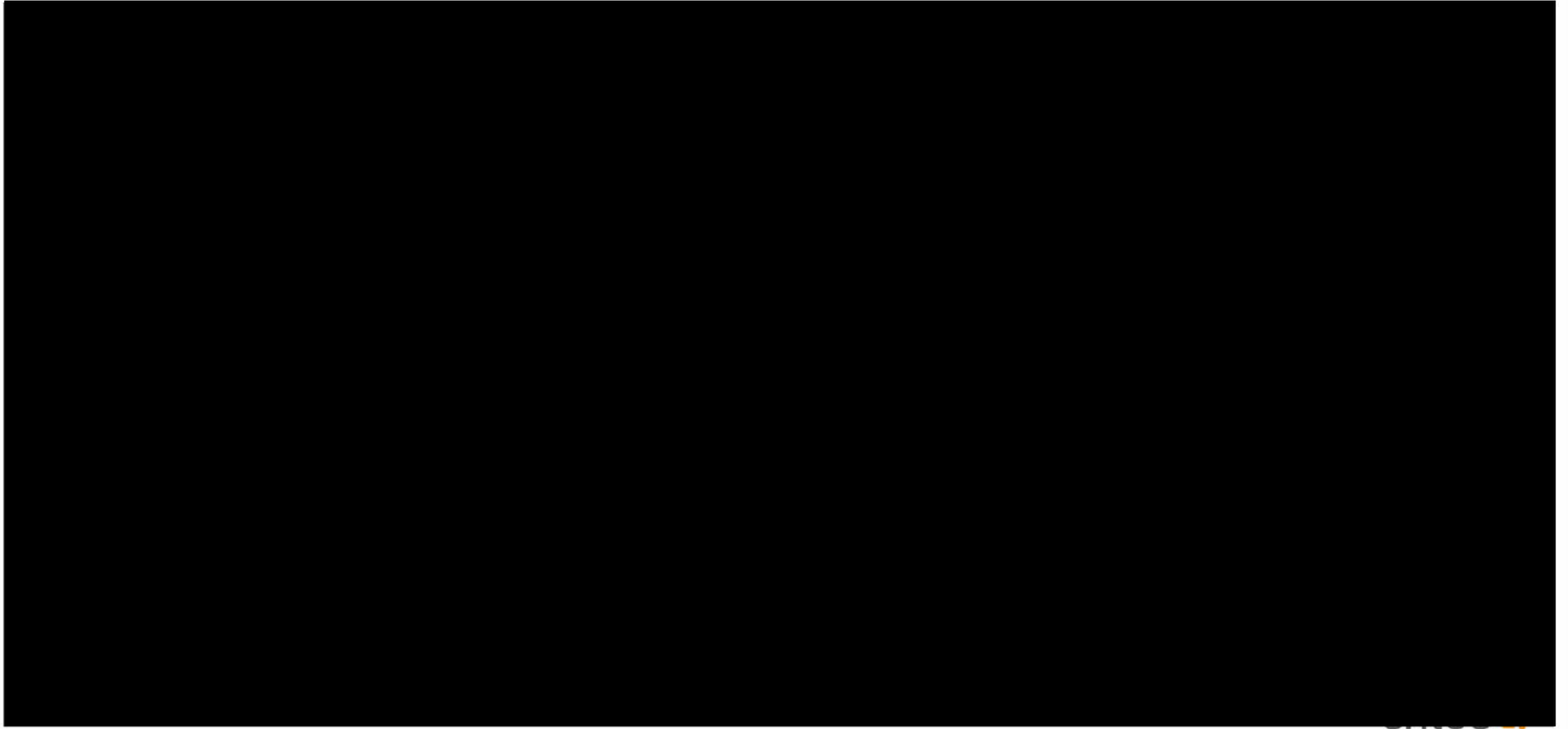
2nd

3rd

4th



ITALIAONLINE – CDB setups



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CSAAAREV000000835_0047

WHAT DID WE LEARN?

IOL Average Overall CPM

The bad news (even if intuitive) is that IOL is generating an higher overall CPM if it does not guarantee us a Sponsorship level. This is a big threat. However they are testing the current setup because: 1) they would not like to become too much Google oriented; 2) because internally Programmatic and Direct Sales are rivals and they are seeing some cannibalization from Direct Sales on displays that could be sold at a higher CPM.

PRIORITY is always KEY

It's not a big news that the priority level is a key factor, but there are some new details to evaluate. The Publisher would like to create a competitive environment through «Client to Server» Header Bidding and EBDA, but if it gives some priority to its Direct sales (and maybe to Programmatic Guaranteed or Google First Look) it could be the case that also Criteo can ask for a Sponsorship level above some floor.

A/B Test on the Shading Factor

Comparing the CUV per price band of Google vs. CDB on IOL, it is clear that the use of the default Shading Factors ([REDACTED]) is preventing us to buy good volumes of displays on CDB below [REDACTED] CPM.

Less displays, unchanged value

IOL is now happy because we are not buying too many displays, so we are going back to the period in which Criteo was able to buy a «right» amount of displays at a strong CPM rate. On our side we evaluated internally that the lack of volumes is not impacting too much on the performances we are generating for our clients